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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,930	12/30/2003	Angel Stoyanov	25277	1937

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EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	**PAPER NUMBER**
1731	

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/748,930	STOYANOV ET AL.	
	Examiner	Art Unit	
	Dennis Cordray	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-16,18 and 19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-16* is/are rejected.

7)☒ Claim(s) *18-19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Oath/Declaration

1. The Declaration under 37 C.F.R. 1.132, filed 10/9/2006, is acknowledged. Applicant presented data showing that certain polyols do not contribute to crosslinking of cellulosic fibers, whether used with or without a citric acid crosslinking agent or sodium hypophosphite. The data further show that using too much of certain polyols can decrease crosslinking (Samples E and G).

Response to Arguments

2. Applicant's arguments and Declaration under 37 C.F.R. 1.132, filed 10/9/2006, with respect to the rejections of Claims 1,3-7, 9-12, 16 and 18-19 are rejected under 35 U.S.C. 103(a) over Hansen et al ('411) in view of Cook et al and further in view of Hatsuda et al, and Claims 7-9 are rejected under 35 U.S.C.103(a) over Hansen et al ('411) in view of Cook et al and further in view of Smith et al or Jewell et al have been fully considered and are persuasive.

Hansen et al ('411) discloses a crosslinked cellulosic product comprising cellulose fibers, non polymeric binders, which include α-hydroxy polycarboxylic acid and polyols, for binding particles to fibers. Some of the binders, including α-hydroxy polycarboxylic acids and polyols, can also be used as crosslinking agents. The crosslinking material and binder can be different materials and both can be added prior to curing, thus crosslinking can be done in the presence of the particle binders, provided precautions are taken to prevent all of the binder material from be used up for crosslinking and leaving none for particle binding.

Hansen et al ('411) does not require either the binder or the crosslinking material to be a polyol, as do the instant claims. In addition, the aforementioned Declaration demonstrates that some polyols do not crosslink cellulosic fibers and using too much of some polyols can decrease crosslinking. Hansen et al ('411) discloses that the preferred point of addition of the binder is after the curing step, particularly if the binder is capable of functioning as a crosslinking material. Thus, the disclosure of Hansen et al ('411) while allowing the possibility of crosslinking the fibers in the presence of a polyol, would not have made it obvious to one of ordinary skill in the art to do so.

The rejections have been withdrawn. However, upon further consideration, new grounds of rejection are made as detailed below.

Claim Rejections - 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-7, 9, 10, 16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hansen et al (5589256).

Hansen ('256) et al discloses crosslinked cellulosic fibers comprising particle binders (Abs; col 6, lines 14-23; col 38, lines 16-28). One or more particle binders can be used, including α-hydroxy polycarboxylic acids (citric or tartaric acid are recited as examples) and polyols and polyhydric alcohols (monosaccharide and disaccharide are recited as examples that are C_4-C_{12} acyclic polyols per the definition given on p 4, lines 12-13 of the instant Specification) (col 15, lines 41-45; col 16, lines 57-67; col 20, lines 34-40). Groups of particle binders are preferably used together, such as a polycarboxylic acid and a polyol (col 19, lines 54-61 and particularly line 61). The particle binders can be added before, after or simultaneously with curing (col 42, lines 31-34). Where the binders can also function as an interfiber crosslinking agent (citric acid and polyols are recited as examples), the fibers should contain at least 20% by weight of water, which inhibits ester bond formation and ensures that adequate binder will remain in the fibers to bind the particles to the fibers (col 42, lines 38-57). Thus, in some embodiments, the fibers are crosslinked in the presence of the particle binder that comprises an α-hydroxy polycarboxylic acid and a polyol. Applicant has demonstrated that some acyclic polyols do not crosslink cellulosic fibers. Whether or not the polyol actually crosslinks the fibers is irrelevant as pertains to the instant claims, only that the crosslinking occurs in the presence of the polyol. Examples are given of fibers having a wet bulk of 16.1 cc/g or greater (col 29, lines 1-10).

Hansen ('256) et al does not disclose the Whiteness Index, L value, a-value or b-value of the fibers. The reference discloses all the limitations of the claims (in this case, cellulosic fibers crosslinked with an α-hydroxy polycarboxylic acid in the presence of a polyol) except for properties (in the instant case, a Whiteness Index greater than about 69.0, an Lvalue greater than about 94.5, an *a*-value greater than about –1.55 and less than about –0.60, a *b*-value less than about 8.50). Where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent (MPEP 2112- 2112.01).

4. Claim 8 is rejected under 35 U.S.C. 103(a) as unpatentable over Hansen et al ('256) in view of Smith et al (US 2002/0090511.

Hansen et al ('256) does not disclose malic acid as a crosslinking agent. Hansen et al ('256) does teach that polycarboxylic acids are known to be crosslinking agents for cellulosic fibers and recites citric acid as an example (col 2, lines 1-4; col 38, lines 35-37).

Smith et al discloses that citric, malic and tartaric acids are crosslinking agents for cellulosic fibers p 6, pars 71 and 74; pp 13-14, Tables 3 & 4).

The art of Hansen et al ('256), Smith et al and the instant invention is analogous as pertaining to the crosslinking of cellulosic fibers. The claimed polycarboxylic acids

are all α-hydroxy polycarboxylic acids and one of ordinary skill in the art would have expected them to function similarly. It would have been obvious to one of ordinary skill in the art to use any of the claimed acids as a crosslinking agent for the fibers of Hansen et al ('256) in view of Smith et al as well known and functionally equivalent options and have a reasonable expectation of success.

5. Claims 1, 3-16 are rejected under 35 U.S.C. 103(a) as unpatentable over Hansen et al ('256) in view of Hansen et al (5789326).

The disclosure of Hansen et al ('256) is detailed above. Hansen et al ('256) does not disclose the specific acyclic polyols and heterosides of the instant Claims.

Hansen et al ('326) discloses crosslinked cellulosic fibers comprising particle binders (Abs; col 10, lines 26-40; col 45, lines 30-33). Particle binders include α-hydroxy polycarboxylic acids (citric is recited as an example) and polyols (sorbitol is claimed) (col 46, lines 7-15; Claims 3 and 4). The particle binders can be added before, after or simultaneously with curing (col 45, line 66 to col 46, line 3). Where the binders can also function as an interfiber crosslinking agent (citric acid and polyols, are recited as examples), the fibers should contain at least 20% by weight of water, which inhibits ester bond formation and ensures that adequate binder will remain in the fibers to bind the particles to the fibers (col 46, lines 12-29). The crosslinking agent, such as citric acid, or any other croslinking agent known in the art, can be added independently of the binder (col 42, line 61 to col 43, line 14 and particularly col 43, line 8). Thus, in some embodiments, the fibers are crosslinked in the presence of the particle binder that

comprises sorbitol. Examples are given of fibers having a wet bulk of 16.1 cc/g or greater (col 36, lines 15-22). The structure disclosed by Hansen et al ('326) is similar to that disclosed by Hansen et al ('256).

The art of Hansen et al ('256), Hansen et al ('326) and the instant invention is analgous as pertaining to crosslinking cellulosic fibers in the presence of a polyol. It would have been obvious to one of ordinary skill in the art at the time of the invention to use sorbitol as a particle binder in the fibers of Hansen et al ('256) in view of Hansen et al ('326) as a functionally equivalent option and have a reasonable expectation of success. It would also have been obvious to one of ordinary skill in the art that the other claimed species of polyol (erythritol, xylitol, arabinitol, ribitol, Mannitol, perseitol, volemitol, maltitol, myo-inositol and lactitol), having structures similar to sorbitol (five to seven hydroxyl groups on adjacent carbon atoms), would be expected to react similarly. It would thus have been obvious to one of ordinary skill in the art to substitute any of the claimed polyols for sorbitol as a particle binder in the fibers of Hansen et al ('256) in view of Hansen et al ('326) as a functionally equivalent option and have a reasonable expectation of success.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1, 5-8 and 10-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over (renumbered) claims 1-9 and 11-12 of copending Application No. 10/748977, as detailed in the previous Office Actions. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed fibers in the instant invention are obvious by the method claimed in the copending application (i.e.-by following the method in the copending application, a person with ordinary skill in the art would expect to make the claimed fibers). The claims of the copending application recite crosslinking cellulosic fibers in the presence of a C_4 to C_{12} polyol, the crosslinking agents and polyols being the same as those of the instant invention.

7. Claims 1, 5-8, 10-12 and 16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 10/815206. The claims of the copending application recite an additional step of bleaching the cellulosic fibers that have been crosslinked in the presence of a C_4 to C_{12} polyol, the crosslinking agents and polyols being the same as those of the instant invention. The instant application does not exclude the use of bleached fibers or of bleaching the fibers, therefore the fibers of the copending

application are a species of the fibers of the instant application and would have the claimed properties (i.e.-Whiteness Index greater than about 69.0 and L-value greater than about 94.5) of the instant application.

8. Claims 1, 3-8, 10, and 12-16 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of copending Application No. 10/748969. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed fibers in the instant invention are included in the fiber containing product claimed in the copending application and it would be obvious to make an absorbent product as a typical application of crosslinked cellulosic fibers.

Allowable Subject Matter

9. Claims 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The recited prior art discloses crosslinking of cellulosic fibers in the presence of a C_4 to C_{12} polyol, but is silent as to the amount of polyol used in the process. As Applicants have shown in the Disclosure and aforementioned Declaration, the amount and kind of polyol used has a significant effect on the properties of the fibers. Since the prior art discloses combinations of polycarboxylic acid and polyol in general, it would not

have been obvious to one of ordinary skill in the art to apply the specifically claimed amounts of polyol to the fibers.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DRC

ERIC HUG
PRIMARY EXAMINER